

occasionally illustrated by diagrams of the apparatus employed.

What benefit the student will be able to derive from the technical chapters can only be decided by experience. The value of these is undoubtedly enhanced by the supplementary album containing some 560 excellent diagrams illustrating technical apparatus and actual manufacturing processes. Amongst other processes illustrated are the manufacture of liquid ammonia, liquid carbonic acid, chlorine, ether, aniline, hydrochloric, nitric, sulphuric, tartaric, citric, and carbolic acids. A careful study of such diagrams cannot but be of great service to all intending works chemists.

The Personality of the Physician. By Dr. Alfred T. Schofield. Pp. x+317. (London: J. and A. Churchill, 1904.) Price 5s. net.

As with all the writings of Dr. Schofield, this present work shows indubitable signs of wide reading and of careful thought.

The underlying gist of the matter is that the most potent factor in a physician's success is the personal equation. Of course, by the word "success" Dr. Schofield does not mean what is sometimes profanely styled "scooping in the shekels"! Nor does he fall into the very common error of confusing *personality* with *prestige*. The latter may, of course, be shared with the physician, who aspires to occupy the most lofty possible pinnacle of moral excellence, by the lowest and most unprincipled charlatan.

Happily, the ethical standard, recognised by the medical profession in this country, is of the highest conceivable type. Nevertheless, any publication that tends to raise, rather than to level down, that ideal is very rightly welcomed alike by the profession, by the Press, and by the people at large.

Some medical men are more comforting than others, and it is quite certain that pessimism more surely empties the consultant's waiting-room than any other quality. If the reviewer, who yields to no man in his admiration of the noblest of all professions, might be for once pardoned for a little private grumble at some of the physicians with whom he has come in contact, it is because of the grudging manner in which certain doctors, otherwise worthy and excellent men, deal out with sparing hand a remedy—*Tinctura Spei*—which costs them nothing, and yet is probably the most valuable drug ever dispensed!

Rustless Coatings: Corrosion and Electrolysis of Iron and Steel. By M. P. Wood. Pp. x+432. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1904.) Price 17s. net.

MR. M. P. WOOD may be a good "practical" man, but he has neither literary ability nor a knowledge of science sufficient to enable him to do justice to a subject which demands much more than rule-of-thumb practice to deal with it adequately. His book is a strange medley of so-called scientific statements strung together without any real acquaintance with their meaning. Its appearance of scientific erudition may serve to deceive the unwary, and we quite agree with Mr. Wood that there is much in paint and in things connected with paint that is calculated to deceive the unwary. But then something depends upon the guide. Mr. Wood's book is very prettily got up, and some of the illustrations are in the highest style of process-art. But like much of the subject-matter, many of them are wholly irrelevant. Mr. Wood has evidently had the ambition to make a book on a subject with which as a practical man he has been more or less intimately connected, but in this matter his ambition has overleaped itself.

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Ankauf, Einrichtung und Pflege des Motorzweirades. By Wolfgang Vogel. Pp. xiii+144. (Berlin: Phönix-Verlag, 1904.) Price 2.65 marks.

ANYONE who possesses a motor bicycle or tricycle and can read the German language will find in these pages much valuable information in the form of practical suggestions as to the buying, working, and maintenance of these useful means of locomotion. The author deals fully with every part of the machine, and illustrates the text with numerous drawings which should very much assist the novice in understanding the functions of the various parts of the machine. The great improvement in design of motors, and the growing popularity of this form of transport, will no doubt call for many small treatises on the subject, of which the present one is an excellent example.

LETTERS TO THE EDITOR.

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Origin of Radium.

APROPOS of Mr. Strutt's letter in *NATURE* of July 7, it may be recalled that the Curies found that the artificially prepared chalcite (the uranium copper phosphate) contained no radium, whereas the natural substance did.

It appears to me that if this fact is considered along with Mr. Soddy's result as to the failure of uranium nitrate to generate radium, the *prima facie* interpretation would be that the combined copper atom was in some way concerned. Of course the alternative view is still left that it takes a longer time than elapsed in Mr. Soddy's observations for radium to emerge from a succession of changes taking place in the uranium atom, and that this atom is the sole parent. However, in the present state of our knowledge it seems worth investigating if it may not turn out that radium results from the convection of ions from atoms of higher to atoms of lower atomic weight, producing in radium an unstable or overcharged atom.

On these grounds I have recently induced my friend Mr. Emil Werner to prepare about half a kilo. of the uranium mica or chalcite with the view of testing at intervals its yield of radium emanation, if any is, indeed, generated. Along with this will be observed the pure uranium nitrate as well as an impure uranium nitrate recrystallised with small quantities of some of the heavy metals. My experiments are on rather a small scale. It is desirable, I think, that they should be repeated by some one commanding larger resources.

J. JOLY.
Trinity College, Dublin.

Electric Wave Recorder for Strutt's Radium Electroscope.

THE periodical discharges of a Strutt's radium electroscope can be arranged to ring a bell or print a record of every contact of the leaves; each discharge from the outside terminal, when the leaf strikes, is sufficient to act on a coherer, if any part of the coherer circuit is connected by wire, so that the discharge terminal of the vacuum tube takes the place of the aerial, as used in wireless telegraphy; the experiment never fails, every discharge producing a ring on the bell or a dot on the Morse tape as desired. For the coherer I use two pieces of No. 16 German silver wire, with nickel filings in the gap, at ordinary atmospheric pressure.

It is sometimes possible to get the coherer to respond by induction without metallic contact with the terminal, but this is rather beyond the sensibility of the apparatus employed.

I am greatly indebted to Dr. W. H. Martindale for the loan of his Strutt's radium electroscope for use in these

experiments; the performance of this instrument is very fine; the quantity of radium enclosed is nearly 3 milligrams; this produces a discharge at intervals of about 70 seconds—this rate is not in any way altered by attaching the coherer and apparatus. F. HARRISON GLEW.

156 Clapham Road, S.W., July 1.

THE MEMORIAL TO SIR GEORGE STOKES.

ON Thursday last, July 7, the memorial to Sir George Gabriel Stokes was unveiled in Westminster Abbey by the Duke of Devonshire in his capacity of Chancellor of the University of Cambridge.

The initial steps for the erection of this memorial were taken at a joint meeting of representatives of the Royal Society and the University of Cambridge, held in the Royal Society's rooms on March 12, 1903, when a committee was constituted to devise measures for providing a public memorial to commemorate the scientific career of Sir George Stokes and to take steps for carrying the project into effect. On that occasion it was decided to send a letter, in the names of the Chancellor of the University of Cambridge and the president of the Royal Society, requesting the authority of the Dean and Chapter of Westminster to place a memorial in the Abbey in the form of a medallion relief portrait of Sir George Gabriel Stokes, of the same general character as the memorials of Charles Darwin and other scientific men now in the Abbey. At the same time a subcommittee was formed to collect subscriptions for the purpose in view, and for carrying out the resolution of the full committee. In response to the committee's application the Dean gave his assent to the proposal, and agreed to take detailed plans into consideration. The subcommittee consequently, in consultation with the Dean, offered a commission to Mr. Hamo Thorneycroft, R.A., to execute a medallion.

The ceremony on Thursday was preceded by a meeting, in the Jerusalem Chamber, of subscribers to the memorial, and personal friends of Sir George Stokes. The meeting was presided over by the Dean, and was attended by many distinguished men of science and of letters. The Dean was supported by the Duke of Devonshire, Sir William Huggins, president of the Royal Society, Lord Kelvin, Lord Rayleigh, Prof. Larmor, and Prof. Forsyth (honorary secretaries to the memorial fund), and Mr. Kempe, treasurer of the Royal Society. There were present also the American Ambassador, Mr. Bryce, Sir William Crookes, Prof. George Darwin, Sir James Dewar, Sir Joseph Fayrer, Principal Carey Foster, Mr. Francis Galton, Sir John Gorst, Prof. Liveing, Sir Norman Lockyer, Sir Andrew Noble, Dr. Thorpe, and many other fellows of the Royal Society.

Prof. Larmor read letters from the Prime Minister, Lord Lister, Sir Joseph Hooker, Sir Michael Foster, Lord Goschen, Lord Avebury, and others expressing regret for their unavoidable absence.

The Dean opened the proceedings, and prefaced his remarks by directing attention to the increasing difficulty of finding space within the Abbey for such memorials as that which they were met to dedicate. He stated the history of the movement described above, and referred to the wonderful trio of famous senior wranglers occurring in successive years, Stokes, Cayley, and Adams, followed two years later by Lord Kelvin, and enlarged upon Stokes's lofty personal character, his peculiar greatness of mind, his generosity, and his humility. The Dean regretted the impracticability of devising a motto for the memorial tablet which could with sufficient terseness express the comprehensive range of Stokes's genius.

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The Dean then called upon Sir William Huggins, president of the Royal Society, who, after referring to the part the Royal Society had taken in the movement for the memorial, spoke of the great services rendered to the Royal Society by Sir George Stokes during his thirty-one years' tenure of the secretaryship of the Society and his subsequent five years' occupancy of the presidential chair. Sir William referred to the wide range of Stokes's discoveries and particularly to the great advances which he made in the application of mathematics to physics. He extolled the wonderfully even balance of his powers and his remarkable soundness of judgment, and contended that his influence on his time was due as much to his greatness of character as to his intellectual accomplishments. He therefore held him worthy of a shrine by the side of Newton, Herschel, Darwin, Adams, and Joule.

Lord Kelvin described in some detail, and eulogised the great range and broad aspect of Stokes's work in science, and pointed out how fruitful it had been of great developments in recent times. He referred to his investigations upon elasticity, his paper of 1850 upon water waves, his researches in light and optics, and particularly to his discovery of fluorescence; and reminded his hearers that Stokes's work and thought are but partially represented by his published writings. He recalled the indebtedness of many authors of scientific papers to Stokes for aid and illumination received from him during his long secretaryship of the Royal Society, and in feeling terms referred to his own relations with Stokes, saying, "For sixty years of my own life I looked upon Stokes as my teacher, guide, and friend. His death was for me truly a bereavement."

Lord Rayleigh, speaking as a pupil of Sir George Stokes, described his experiences as a student at his lectures, and the unbounded admiration he always felt for him as a teacher, a man, and an investigator. He held up as an example still to be followed the simplicity of Stokes's experimental methods and his limitation of his apparatus to the bare essentials for the demonstration of the principles he was expounding. Lord Rayleigh referred more particularly to some experiments and investigations of Stokes, including those on the spectrum of the blood, on the theory of spectrum analysis, and to some of his incidental papers on acoustics, and said that Stokes's papers, whether mathematical or physical, or both, were always interesting to read.

The Vice-Chancellor of the University of Cambridge, speaking on behalf of the University, welcomed the honour done to Stokes's memory by this memorial. He paid an eloquent tribute to his great character, to his loyalty and affection for his university and college, and said that the university rejoiced that his name would now have a permanent memorial on the historic walls of that great national church.

The company then proceeded to the Abbey, where, after a prayer from the Dean, the Duke of Devonshire removed the cover from the medallion, which hangs on the wall with those of Adams and Darwin in the north aisle of the choir of the Abbey.

The Duke of Devonshire said, "Speaking on behalf of the subscribers, I offer this medallion to be added to the memorials and to be preserved in the Abbey church."

The Dean responded, "Speaking in the name of the Dean and Chapter of Westminster, I accept this medallion to keep and preserve among the memorials of the good and great men in this place."

The memorial is in the form of a bronze medallion, with a portrait head of Sir George Stokes in very high relief, and bears the inscription, "George Gabriel Stokes, 1819-1903."